

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An electrode for a secondary electrochemical cell comprising a silicon nanofilm or one or more silicon nanoparticles, or a lithium alloy thereof of said silicon nanofilm or said silicon nanoparticles, having a silicon oxide outer layer, wherein said nanofilm or nanoparticles are 18.5% to 70% SiO₂ by weight, wherein the thickness of the silicon nanofilm or the lithium alloy thereof is not greater than 200 nm or wherein the diameters of the silicon nanoparticles or the lithium alloy thereof are not greater than 50 nm. ~~has a thickness selected over the range of 100 nm to 200 nm.~~

2. (Currently amended) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm that alloys with lithium at ambient temperature.

3. (Previously presented) The electrode of claim 1, wherein the lithium alloy has a theoretical stoichiometry Li_xSi, and x is at least 2.1.

4. (Cancelled).

5. (Cancelled)

6. (Currently amended) The electrode of claim 1, wherein the electrode comprises an amorphous silicon nanofilm ~~is amorphous.~~

7. (Original) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm ~~is synthesized by physical vapor deposition.~~

8. (Cancelled)

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)
15. (Cancelled)
16. (Cancelled)
17. (Cancelled).
18. (Cancelled)
19. (Cancelled)
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)
25. (Cancelled)
26. (Currently amended) A secondary electrochemical cell comprising an anode, a cathode, and an electrolyte, wherein the anode comprises the silicon nanofilm, the silicon nanoparticles, or the lithium alloy of said silicon nanofilm or said silicon nanoparticles ~~or the lithium alloy thereof~~ of claim 1.
27. (Cancelled).
28. (Original) The secondary electrochemical cell of claim 26, wherein the secondary electrochemical cell is a battery or an electrochemical supercapacitor.
29. (Cancelled)
30. (Cancelled)
31. (Cancelled)
32. (Cancelled)
33. (Cancelled)
34. (Cancelled)
35. (Cancelled)
36. (Currently amended) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm that is a contiguous nanofilm.
37. (Withdrawn) The electrode of claim 1, wherein the silicon nanofilm comprises both crystalline and amorphous domains.

38. (Currently amended) ~~An electrode for a secondary electrochemical cell comprising a silicon nanofilm or a lithium alloy thereof, wherein the silicon nanofilm or the lithium alloy thereof is not greater than about 200 nm thick, said electrode having~~
The secondary electrochemical cell of claim 26, wherein said anode is a silicon nanofilm and has a reversible specific capacity of at least 1000 mAh/g.

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Withdrawn) The electrode of claim 48, wherein the silicon nanofilm comprises both crystalline and amorphous domains.

48. (Currently amended) ~~The electrode of claim 48~~ secondary electrochemical cell of claim 26, wherein said anode comprises the silicon nanofilm or the lithium alloy thereof and wherein the electrode has a reversible specific capacity of at least 2500 mAh/g.

49. (Currently amended) ~~The electrode of claim 48~~ secondary electrochemical cell of claim 26, wherein said anode comprises the silicon nanofilm or the lithium alloy thereof and has said electrode having an average capacity loss per cycle of 0.3% or less for cycles greater than 20.

50. (New) The electrode of claim 1, wherein the electrode comprises said silicon nanofilm or the lithium alloy thereof.

51. (New) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles or the lithium alloy thereof.

52. (New) The electrode of claim 1, wherein said silicon nanoparticles alloy with lithium at ambient temperature.

53. (New) The electrode of claim 49, wherein the electrode comprises a silicon nanofilm or the lithium alloy thereof that is not greater than 100 nm thick.

54. (New) The electrode of claim 1, wherein the electrode comprises a silicon nanofilm or the lithium alloy thereof, wherein said silicon nanofilm further comprises Li_2O formed from said silicon oxide outer layer upon reaction with lithium.

55. (New) The electrode of claim 1, wherein the silicon oxide outer layer is amorphous.

56. (New) The electrode of claim 1, wherein the silicon nanofilm, the silicon nanoparticles, or the lithium alloy of said silicon nanofilm or silicon nanoparticles, is 50% to 67% SiO_2 by weight.

57. (New) The electrode of claim 1, wherein the silicon nanofilm, the silicon nanoparticles, or the lithium alloy of said silicon nanofilm or silicon nanoparticles, is up to 50% SiO_2 by weight.

58. (New) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles, wherein each of said nanoparticles having a crystalline domain.

59. (New) The electrode of claim 1, wherein the electrode comprises said silicon nanoparticles synthesized by inert gas condensation and ballistic consolidation.

60. (New) The electrode of claim 1, wherein the electrode does not comprise carbon black.

61. (New) The secondary electrochemical cell of claim 26, wherein said anode has a reversible specific capacity of at least 1000 mAh/g.

62. (New) The secondary electrochemical cell of claim 26, wherein the anode comprises said silicon nanofilm or the lithium alloy thereof of claim 1.

63. (New) The secondary electrochemical cell of claim 26, wherein the anode comprises said silicon nanoparticles or the lithium alloy thereof of claim 1.